TA990FXE UEFI BIOS Manual

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TA990FXE UEFI BIOS Manual

UEFI BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.
UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.
The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

Plug and Play Support

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

ACPI Support

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI UEFI BIOS also supports Version 2.3 of the PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

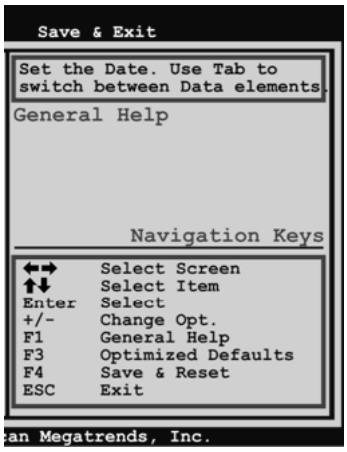
Supported CPUs

This AMI UEFI BIOS supports the AMD CPU.

Using Setup

When starting up the computer, press **<Del>** during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.



Notice

- The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

1 Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.

BIOS Information

Shows system information including UEFI BIOS version, Project Code, Model Name, Build Date, etc.

Total Memory

Shows system memory size, VGA shard memory will be excluded.

System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

System Time

Set the system internal clock.

2 Advanced Menu

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.

PCI Subsystem Settings

BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
PCI Bus Driver Version V 2.04.00
PCI Option ROM Handling
PCI ROM Priority
Legacy ROM
PCI Common Settings Settings
PCI Latency Timer
32 PCI Bus Clocks
VGA Palette Snoop
Disabled
PCI Express Settings
In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
Advanced

PCI ROM Priority

In case of multiple option ROMs (Legacy and EFI Compatible), this item specifies what PCI Option ROM to launch
Options: Legacy ROM (Default) / EFI Compatible ROM

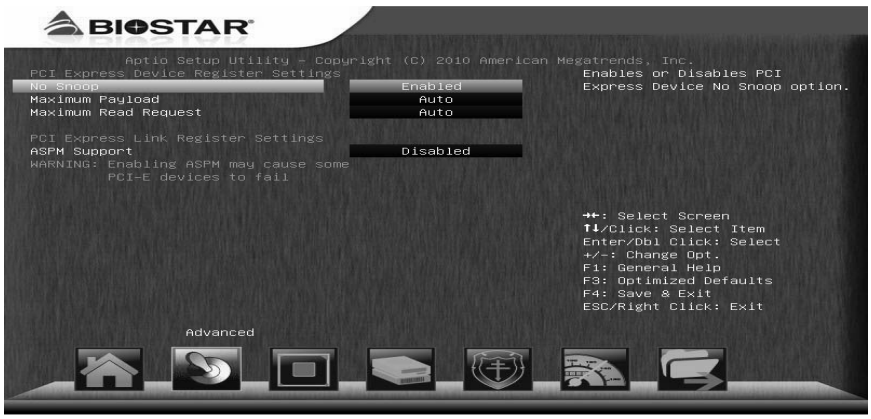
PCI Latency Timer

This item sets the value to be programmed into PCI Latency Timer Register.
Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

VGA Palette Snoop

This item enables or disables VGA Palette Registers Snooping.
Options: Disabled (Default) / Enabled

PCI Express Settings



No Snoop
This item enables or disables PCI Express Device No Snoop option.
Options: Enabled (Default) / Disabled

Maximum Payload

This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

Maximum Read Request

This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

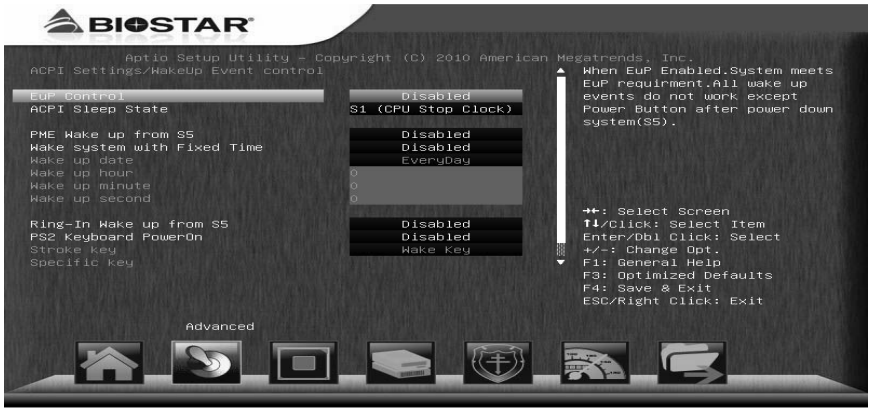
Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

ASPM Support

This item sets the ASPM Level: Force LO – Force all links to LO State; Auto – BIOS auto configures; Disabled – Disables ASPM.

Options: Disabled (Default) / Auto / Force L0s

ACPI Settings/WakeUp Event control



EuP Control

When EuP is enabled, the system will meet EuP requirement.

Options: Disabled (Default) / Enabled

ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Options: S1 (CPU Stop Clock) (Default) / Suspend Disabled / S3 (Suspend to RAM)

PME Wake up from S5

The item enables the system to wake from S5 using PME event.
Options: Disabled (Default) / Enabled

Wake system with Fixed Time

This item enables or disables the system to wake on by alarm event. When this item is enabled, the system will wake on the hr::min::sec specified.
Options: Disabled (Default) / Enabled

Wake up date

You can choose which date the system will boot up.

Wake up hour / Wake up minute / Wake up second

You can choose the system boot up time, input hour, minute and second to specify.

Ring-In Wake up from S5

This item enables the system to wake from S5 using Ring-In event.
Options: Disabled (Default) / Enabled

PS2 Keyboard PowerOn

This item allows you to control the keyboard power on function.
Options: Disabled (Default) / Any Key / Stroke Key / Specific Key

Stroke Keys Selected

This item will show only when Keyboard PowerOn is set “Stroke Key.”
Options: Wake Key (Default) / Power Key / Ctrl+F1 / Ctrl+F2 / Ctrl+F3 / Ctrl +F4 / Ctrl+F5 / Ctrl+F6

Specific Key Enter

This item will show only when Keyboard PowerOn is set "Specific Key." Press Enter to set Specific key.

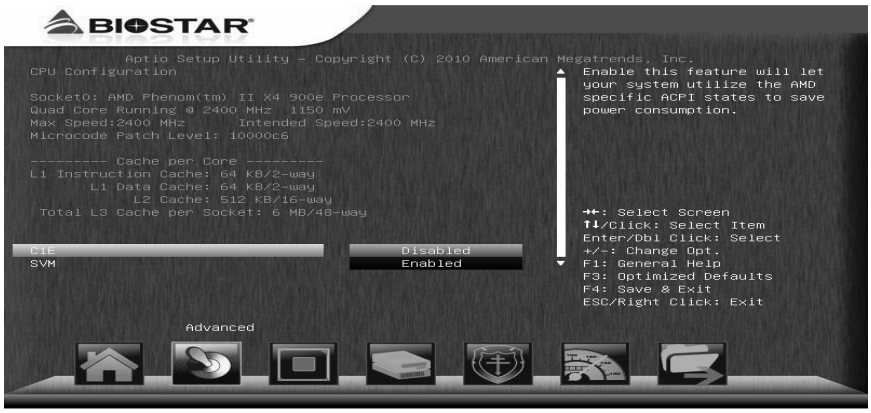
PS2 Mouse PowerOn

This item allows you to control the mouse power on function.
Options: Disabled (Default) / Enabled

USB Device Wakeup from S3/S4

This item allows you to enable or disabled the USB resume from S3/S4 function.
Options: Disabled (Default) / Enabled

CPU Configuration


BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
CPU Configuration
Socket0: AMD Phenom(tm) II X4 900e Processor
Quad Core Running @ 2400 MHz 1150 mV
Max Speed:2400 MHz Intended Speed:2400 MHz
Microcode Patch Level: 10000C6
--------- Cache per Core ---------
L1 Instruction Cache: 64 KB/2-way
L1 Data Cache: 64 KB/2-way
L2 Cache: 512 KB/16-way
Total L3 Cache per Socket: 6 MB/48-way
C1E
SVM
Disabled
Enabled
Enable this feature will let your system utilize the AMD specific ACPI states to save power consumption.
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
Advanced

C1E

This item allows you to configure the Enhanced Halt State (C1E) function, which may reduce the power consumption of your system when the system is idle.
Options: Disabled (Default) / Enabled

SVM

This item allows you to enable AMD virtualization in CPU. This secure virtual mode will let your run multiple OS (guest) on the same physical hardware by decoupling OS and physical hardware with the hypervisor layer.
Options: Enabled (Default) / Disabled

PowerNow

This item allows you to enable or disable the generation of ACPI_PPC, _PSS, and _PCT objects.
Options: Enabled (Default) / Disabled

SATA Configuration

The BIOS will automatically detect the presence of SATA devices. There is a sub-menu for each SATA device. Select a device and press <Enter> to enter the sub-menu for detailed options.

SMART FAN Control

CPU Smart FAN

This item allows you to control the CPU Smart Fan function.
Options: Disabled (Default) / Auto / 4Pin / 3Pin

CPU FAN Calibrate

Press [ENTER] to calibrate CPU FAN.

Control Mode

This item provides several operation modes of the fan.
Options: Quiet / Aggressive / Manual

Fan Ctrl OFF(℃)

When CPU temperature is lower than this value, the CPU fan will keep lowest RPM.
Options: 10 (℃) (default)

Fan Ctrl On(℃)

When CPU temperature is higher than this value, the CPU fan controller will turn on.
Options: 20 (℃) (Default)

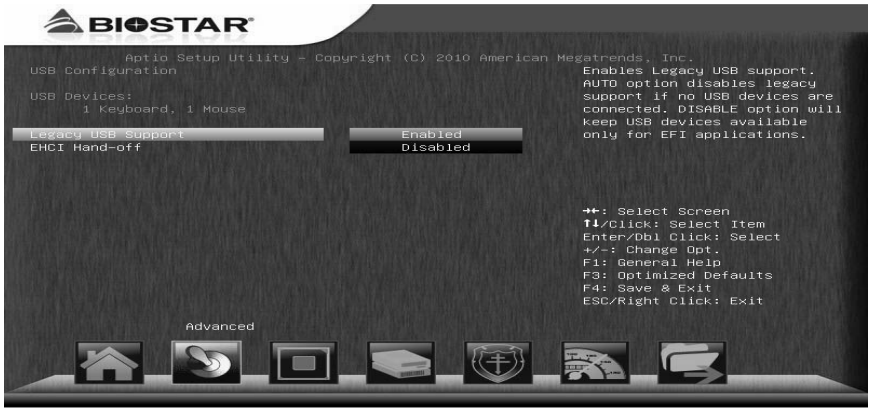
Fan Ctrl Start Value

This item sets CPU FAN Start Speed Value.
Options: 50 (Default)

Fan Ctrl Sensitive

The bigger the numeral is, the higher the FAN speed is.
Options: 30 (Default)

USB Configuration


BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
USB Configuration
USB Devices:
1 Keyboard, 1 Mouse
Legacy USB Support
EHCI Hand-off
Enabled
Disabled
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
Advanced

Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).
Options: Enabled (Default) / Disabled / Auto

EHCI Hand-Off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
Options: Disabled (Default) / Enabled

Super IO Configuration

Restore AC Power Loss

This setting specifies how your system should behave after a power fail or interrupts occurs. Power Off: Leaving the system in power-off status after power recovers. Power ON: Powering on the system immediately when power returns. Last State: 1. Leaving the system in power-off if the system shuts down at DC off status; 2. Powering on the system immediately if the system shuts down at DC on status.
Options: Power Off (Default) / Power On / Last State

Serial Port 1 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ=3,4,5,6,7,10,11,12 / IO=2F8h; IRQ=3,4,5,6,7,10,11,12 / IO=3E8h; IRQ=3,4,5,6,7,10,11,12 / IO=2E8h; IRQ=3,4,5,6,7,10,11,12

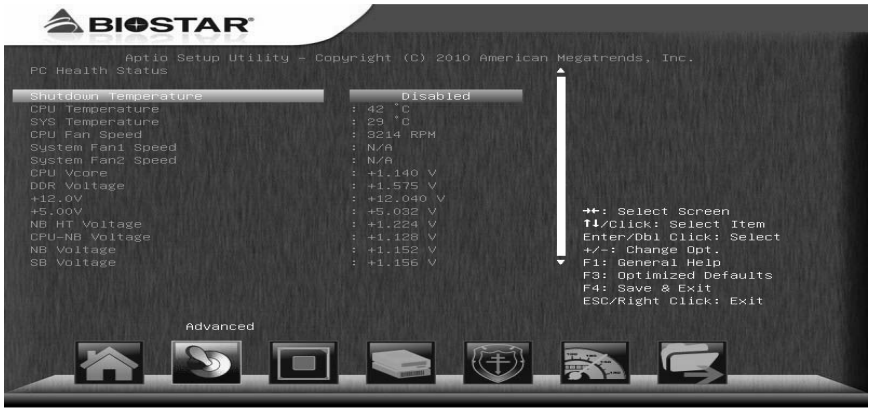
CIR Controller Configuration

CIR Controller

This item enables or disables CIR Controller.

Options: Disabled (Default) / Enabled

H/W Monitor


BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
PC Health Status
Shutdown Temperature : Disabled
CPU Temperature : 42 °C
SYS Temperature : 29 °C
CPU Fan Speed : 3214 RPM
System Fan1 Speed : N/A
System Fan2 Speed : N/A
CPU Vcore : +1.140 V
DDR Voltage : +1.575 V
+12.0V : +12.040 V
+5.00V : +5.032 V
NB HT Voltage : +1.224 V
CPU-NB Voltage : +1.128 V
NB Voltage : +1.152 V
SB Voltage : +1.156 V
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
Advanced

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.

Options: Disabled (Default) / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ / 85℃/185℉ / 90℃/194℉

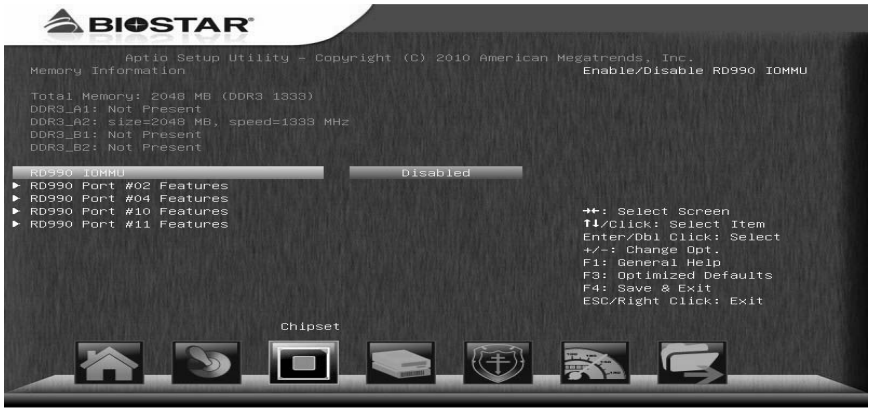
3 Chipset Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.

North Bridge



RD990 IOMMU

This item allows you to enable/disable RD990 IOMMU.
Options: Disabled (Default) / Enabled

RD990 Port #2/#4/#10/#11

Port Enable
Options: Auto (Default) / Enable / Disable

Gen2 High Speed Mode
Options: GEN2 Autonomous (Default) / GEN1 / GEN2 Software Initiated / GEN2 Advertize RC

Port ASPM support
Options: Disabled (Default) / L0s enable / L1 enable / L0s + L1 enable / L0s Downstream Only / L0s Downstream Only + L1

Link Width (Only for Port #02/04/11)
Options: Auto (Default) / x1 / x2 / x4 / x8 / x16

South Bridge Configuration

SB SATA Configuration

S

OnChip SATA Channel

This option allows you to enable the on-chip Serial ATA.
Options: Enabled (Default) / Disabled

OnChip SATA Type

This option allows you to select the on-chip Serial ATA operation mode.
Options: Native IDE (Default) / RAID / AHCI / Legacy IDE

SATA IDE Combined Mode
This option controls the SATA/PATA combined mode.
Options: Enabled (Default) / Disabled

SATA-III Mode
This option allows you to limit SATA Capability.
Options: Auto (Default) / Force Max Gen2

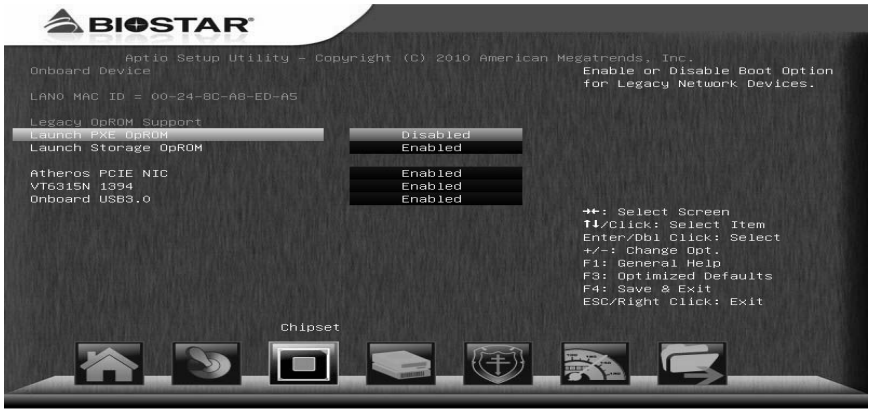
SB USB Configuration

OHCI HC (Bus 0 Dev 18/19/20/22 Fn 0/5)
This item allows you to control OHCI host controller. (USB 1.1 Device)
Options: Enabled (Default) / Disabled

SB Azalia Audio Configuration

HD Audio Azalia Device
This item allows you to control the HD audio device.
Options: Enabled (Default) / Auto / Disabled

Onboard PCI-E Devices



Launch PXE OpROM

This item enables/disables Boot Option for Legacy Network Devices.
Options: Disabled (Default) / Enabled

Launch Storage OpROM

This item enables/disables Boot Option for Legacy Mass Storage Devices with Option ROM.
Options: Enabled (Default) / Disabled

Atheros PCIE NIC

This item enables/disables Atheros PCIE NIC.
Options: Enabled (Default) / Disabled

VT6315N 1394

This item enables/disables Onboard VT6315N 1394 Controller.
Options: Enabled (Default) / Disabled

Onboard USB3.0

This item enables/disables Onboard USB3.0 Controller.
Options: Enabled (Default) / Disabled

4 Boot Menu

This menu allows you to setup the system boot options.

Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.
Options: 2 (Default)

Bootup NumLock State

This item selects the keyboard NumLock state.
Options: On (Default) / Off

Full Screen LOGO Display

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Enabled (Default) / Disabled

GateA20 Active

Upon Request – FA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
Options: Upon Request (Default) / Always

Option ROM Messages

This item sets the display mode for option ROM.
Options: Force BIOS (Default) / Keep Current

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.
Options: Disabled (Default) / Enabled

BOOT SUCCESS BEEP

When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

Boot Option #1/#2/#3

The items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

CD/DVD ROM Drive BBS Priorities

This item sets the order of the legacy devices in this group.

Hard Drive BBS Priorities

This item sets the order of the legacy devices in this group.

5 Security Menu

BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Password Description
Set Administrator Password
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password must be 3 to 20 characters long.
Administrator Password
User Password
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
Main
Advanced
Chipset
Boot
Security
O.N.E
Save & Exit

Administrator Password

This item sets Administrator Password.

User Password

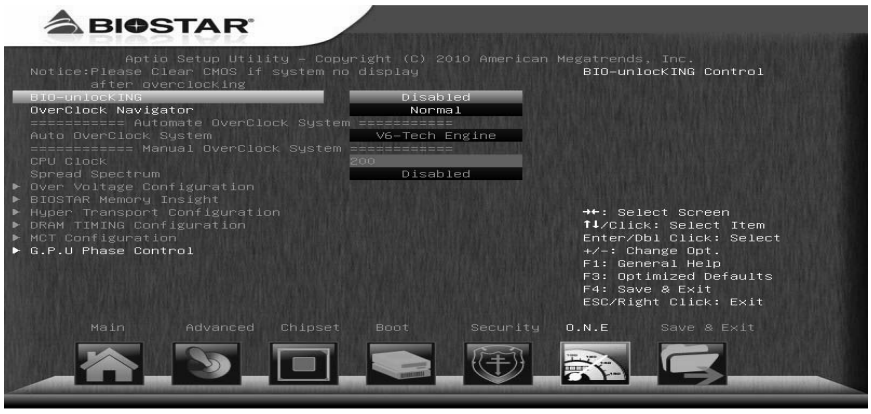
This item sets User Password.

6 O.N.E Menu

This submenu allows you to change voltage and clock of various devices.
(However, we suggest you use the default setting. Changing the voltage and clock improperly may damage the device.)

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



BIO-unlocKING

This item allows you to activate BIO-unlocKING function.
Options: Disabled (Default) / Enabled

OverClock Navigator

OverClock .Navigator is designed for beginners in overclock field.
Based on many test and experiments from Biostar Engineer Team, OverClock Navigator provides 3 default overclock configurations that are able to raise the system performance.
Options: Normal (Default) / Automate OverClock / Manual OverClock

Auto OverClock System

The Overclock Navigator provides 3 different engines helping you to overclock your system. These engines will boost your system performance to different level.
Options:

V6-Tech Engine
This engine will make a good over-clock performance.

V8-Tech Engine
This engine will make a better over-clock performance.

V12-Tech Engine
This engine will make a best over-clock performance.

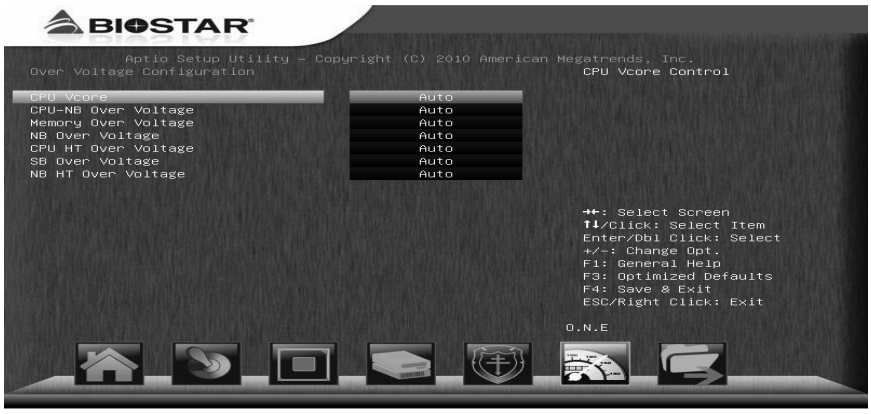
CPU Clock

This item allows BIOS to select CPU Clock (MHz).
Options: 200 (Default) / 200~600

Spread Spectrum

This item allows you to enable or disable spread spectrum for CPU/ATIG/SRC clock.
Options: Disabled (Default) / Enabled

Over-Voltage Configuration



CPU Vcore

This item allows you to select CPU Voltage Control.

CPU-NB Over Voltage

This item allows you to select CPU-NB Voltage Control.

Memory Over Voltage

This item allows you to select Memory Voltage Control.

NB Over Voltage

This item allows you to select NB Voltage Control.

CPU HT Over Voltage

This item allows you to select CPU HT Voltage Control.

SB Over Voltage

This item allows you to select SB Voltage Control.

NB HT Over Voltage

This item allows you to select NB HT Voltage Control.

BIOSTAR Memory Insight

DDR3_A1/A2/B1/B2

These items display SPD information of DDR3 memory.

HT Configuration

BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
HT Configuration
Current HT Link Speed : 2000 MHz
Current HT Link Width : 16 Bits/16 Bits
HT Frequency
HT Width
Auto
Auto
The HyperTransport link will run at this speed if it is slower than or equal to the system clock and the board is capable.
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
O.N.E

HT Frequency

Options: Auto (Default) / 200MHz / 400MHz / 600MHz / 800MHz / 1000MHz / 1200MHz / 1400MHz / 1600MHz / 1800MHz / 2000MHz

HT Width

Options: Auto (Default) / 8 Bit / 16 Bit

DRAM Timing Configuration

BIOSTAR
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
DRAM TIMING Configuration
Current Memory CLK :
MCT Timing Mode
DRAM Timing Mode
N/A, DDR-1333
Auto
Auto
Select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Limit, the DRAM speed will not exceed the specified value. If Manual, the the DRAM speed specified will be programmed regardless of SPD.
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC/Right Click: Exit
O.N.E

MCT Timing Mode

This item allows you to select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Limit, the DRAM speed will not exceed the specified value. If Manual, the DRAM speed specified will be programmed regardless of SPD.
Options: Auto (Default) / Limit / Manual

Memclock Value

This item allows you to set the Memory Clock.
Options: DDR 800 (Default) / DDR 1066 / DDR 1333 / DDR 1600

DRAM Timing Mode

This item allows you to choose to manually or automatically regulate the DRAM Timing.
Options: Auto (Default) / DCT0 / DCT1 / Both

CL

Options: Auto (Default) / 4~12 CLK

2TCMD

Options: Auto (Default) / 1T / 2T

TRCD

Options: Auto (Default) / 5~12 CLK

TRP

Options: Auto (Default) / 5~12 CLK

TRTP

Options: Auto (Default) / 4~7 CLK

TRAS

Options: Auto (Default) / 15~30 CLK

TRC

Options: Auto (Default) / 11~42 CLK

TWR

Options: Auto (Default) / 5~8 / 10 / 12 CLK

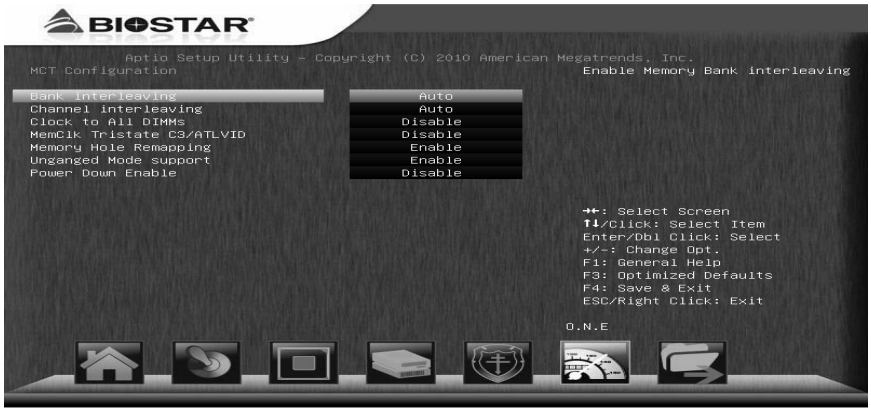
TRRD

Options: Auto (Default) / 4~7 CLK

TWTR

Options: Auto (Default) / 4~7 CLK

MCT Configuration



Bank Interleaving

Bank Interleaving is an advanced chipset technique used to improve memory performance. Memory interleaving increases bandwidth by allowing simultaneous access to more than one piece of memory.
Options: Auto (Default) / Disabled

Channel Interleaving

This item allows you to control the DDR3 dual-channel function.
Options: Auto (Default) / Disabled

Clock to All DIMMs

This item enables unused clocks to DIMMs even memory slots are not populated.
Options: Disabled (Default) / Enabled

MemClk Tristate C3/ATLVID

This item enables or disables the MemClk Tristate function in C3 Mode.
Options: Disabled (Default) / Enabled

Memory Hole Remapping

This item allows you to enable or disable the remapping of the overlapped PCI memory above the total physical memory. Only 64-bit OS supports this function.
Options: Enabled (Default) / Disabled

Unganged Mode support

This item controls the DRAM controller ganged (128bit*1) / unganged (64bit*2) dual-channel operation mode. If two DRAM modules with different size are installed, using unganged mode can still make it run in dual-channel operation.
Options: Enabled (Default) / Disabled

Power Down Enable

This item controls the DRAM power down function.
Options: Disabled (Default) / Enabled

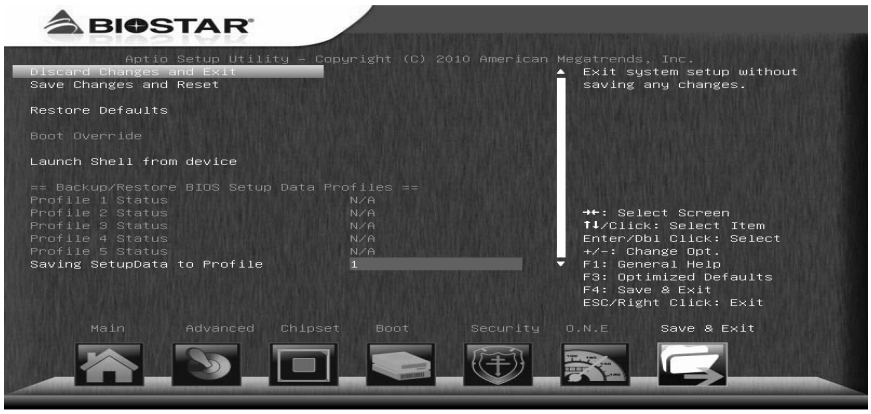
G.P.U Phase Control

G.P.U Phase Mode

This item allows you to control G.P.U Phase Mode (power saving technology).
Options: Auto (Default) / Off

7 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

Save Changes and Reset

Reset the system after saving the changes.

Restore Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

Launch Shell from device

This item attempts to EFI Shell application (Shellx64.efi) from one of the available devices.

Saving SetupData to Profile

This item saves your current BIOS Setup Data to profile 1 ~ 5.

Restoring SetupData from Profile

This item restore your BIOS Setup Data from profile 1 ~ 5.